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| 09/870,843 | 06/01/2001 | Yuzo Yoneyama | Q64787 | 8685 |

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SUGHRUE, MION, ZINN,
MACPEACK & SEAS
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

EXAMINER

TORRES, JUAN A

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| ART UNIT | PAPER NUMBER |
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2631

DATE MAILED: 08/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/870,843

Applicant(s)

YONEYAMA, YUZO

Examiner

Juan A. Torres

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,5 and 7-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 is/are allowed.
- 6) ☒ Claim(s) 3,5,7,8 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Allowable Subject Matter

The indicated allowability of claims 5, 7 and 8 is withdrawn in view of the newly discovered reference(s) to Meszko (US 6327299), Igarashi (US 6466632) and Ikegami (US 4849990). Rejections based on the newly cited reference(s) follow.

Response to Amendment

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 102

In view of the amendment filed on 08/03/2005, the Examiner withdraws claim rejections 35 USC 102 of claim 3 of the previous Office Action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meszko (US 6327299) in view of Igarashi (US 6466632 B1).

As per claim 3 Meszko discloses a transmission diversity type transmitter comprising plural transmission units each transmission unit comprising a delay circuit for delaying a signal and a detector for detecting an RF signal which is based on the signal delayed by said delay circuit, the RF signal transmitting from each transmission

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unit (figure 1 blocks 50 and 52 blocks 56 and 58 and block 54); a comparator for receiving detection signals output from two detectors of two transmission units of said plural transmission units, comparing the detection signals and outputting a comparison signal (figure 1 block 54, column 5 line 23-30); and a delay amount control circuit for controlling said delay circuits on the basis of the comparison signal so that modulation timing of RF signals to be transmitted from said two transmission units are coincident to each other (figure 1 block 54, column 5 line 23-30 block 50 and 52, column 5 line 42-44). Meszko doesn't specifically disclose that the delay amount control circuit calculates an average amplitude of the comparison signal output from said comparator, and controls said delay circuits so that the average amplitude is equal to or lower than a threshold value, whereby the difference in delay time between said two transmission units is converged to a permissible and acceptable value range. It is very well known the use of a average circuit (usually as a low pass filter) and a threshold comparator to avoid fast transitions and Igarashi discloses a delay amount control circuit calculates an average amplitude of the comparison signal output from said comparator, and controls said delay circuits so that the average amplitude is equal to or lower than a threshold value, whereby the difference in delay time between said two transmission units is converged to a permissible and acceptable value range (figure 16 column 15 line 40 to column 16 line 29). Meszko and Igarashi are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine in the diversity transmitting circuit disclosed by Meszko the average and threshold control disclosed by Igarashi. The

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suggestion/motivation for doing so would have been to avoid fast variation due to noise and to smooth the transitions in the transmitter signal. Therefore, it would have been obvious to combine Meszko with Igarashi to obtain the invention as specified in claim 3.

As per claim 10 Meszko and Igarashi disclose claim 3. Igarashi also discloses that the value range to which the difference in delay time between said two transmission units is converged is specified (figure 16 block 305 column 15 line 40 to column 16 line 29). Meszko and Igarashi are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine in the diversity transmitting circuit disclosed by Meszko the average and threshold control disclosed by Igarashi. The suggestion/motivation for doing so would have been to avoid fast variation due to noise and to smooth the transitions in the transmitter signal. Therefore, it would have been obvious to combine Meszko with Igarashi to obtain the invention as specified in claim 10.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meszko (US 6327299) in view of Ikegami (US 4849990 A).

As per claim 5 Meszko discloses a transmission diversity type transmitter comprising plural transmission units each transmission unit comprising a delay circuit for delaying a signal and a detector for detecting an RF signal which is based on the signal delayed by said delay circuit, the RF signal transmitting from each transmission unit (figure 1 blocks 50 and 52 blocks 56 and 58 and block 54); a comparator for receiving detection signals output from two detectors of two transmission units of said

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plural transmission units comparing the detection signals and outputting a comparison signal (figure 1 block 54, column 5 line 23-30); and a delay amount control circuit for controlling said delay circuits on the basis of the comparison signal so that modulation timing of R.F signals to be transmitted from said two transmission units are coincident to each others (figure 1 block 54, column 5 line 23-30 block 50 and 52, column 5 line 42-44), wherein each of said plural transmission units further comprises a modulator, a frequency converter and an amplifier (figure 1 blocks 22-48, and 56-58, column 2 line 50 to column 3 line 65). Meszko doesn't disclose that the delay circuit is provided at the input side of the modulator. Ikegami discloses a delay circuit is provided at the input side of the modulator (figure 1 block 11 column 5 lines 57-62). Meszko and Ikegami are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine in the diversity transmitting circuit disclosed by Meszko the delaying before modulation disclosed by Ikegami. The suggestion/motivation for doing so would have been to improve the Bit Error Rate (Ikegami abstract). Therefore, it would have been obvious to combine Meszko with Ikegami to obtain the invention as specified in claim 5.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meszko (US 6327299).

As per claim 7 Meszko discloses a transmission diversity type transmitter comprising plural transmission units each transmission unit comprising a delay circuit for delaying a signal and a detector for detecting an RF signal which is based on the signal delayed by the delay circuit, the RF signal transmitting from each transmission

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unit (figure 1 blocks 50 and 52 blocks 56 and 58 and block 54); a comparator for receiving detection signals output from two detectors of two transmission units of the plural transmission units comparing the detection signals and outputting a comparison signal (figure 1 block 54, column 5 line 23-30); and a delay amount control circuit for controlling the delay circuits on the basis of the comparison signal so that modulation timing of R.F signals to be transmitted from the two transmission units are coincident to each others (figure 1 block 54, column 5 line 23-30 block 50 and 52, column 5 line 42-44), wherein each of the plural transmission units further comprises a modulator, a frequency converter and an amplifier (figure 1 blocks 22-48, and 56-58, column 2 line 50 to column 3 line 65), where each of the plural transmission units further comprises a modulator, a frequency converter and an amplifier, and the delay circuit is provided between the frequency converter and the amplifier (the position of the delay element only makes a different before or after the modulator. The fact that it is before or after the amplifier will not change the signal this fact can be understood in figures 1 and 3 of Meszko because he includes the filter, upconverter and amplifier in one single block showing that it will not make any difference to delay the signal before the upconverter of between the upconverter and the amplifier. Figure 1 blocks 50, 52, 56 and 58 column 3 lines 52-65). Then it would be obvious to put the delay element between the frequency converter and the amplifier.

As per claim 8 Meszko discloses a transmission diversity type transmitter comprising plural transmission units each transmission unit comprising a delay circuit for delaying a signal and a detector for detecting an RF signal which is based on the

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signal delayed by the delay circuit, the RF signal transmitting from each transmission unit (figure 1 blocks 50 and 52 blocks 56 and 58 and block 54); a comparator for receiving detection signals output from two detectors of two transmission units of the plural transmission units comparing the detection signals and outputting a comparison signal (figure 1 block 54, column 5 line 23-30); and a delay amount control circuit for controlling the delay circuits on the basis of the comparison signal so that modulation timing of R.F signals to be transmitted from the two transmission units are coincident to each others (figure 1 block 54, column 5 line 23-30 block 50 and 52, column 5 line 42-44), wherein each of the plural transmission units further comprises a modulator, a frequency converter and an amplifier (figure 1 blocks 22-48, and 56-58, column 2 line 50 to column 3 line 65), where each of the plural transmission units further comprises a modulator, a frequency converter and an amplifier, and the delay circuit is provided at the output of the amplifier (the position of the delay element only makes a different before or after the modulator. The fact that it is before or after the amplifier will not change the signal this fact can be understood in figures 1 and 3 of Meszko because he includes the filter, upconverter and amplifier in one single block showing that it will not make any difference to delay the signal before the upconverter or between the upconverter and the amplifier or after the amplifier. Figure 1 blocks 50, 52, 56 and 58 column 3 lines 52-65). Then it would be obvious to put the delay element at the output of the amplifier.

Allowable Subject Matter

Claim 9 is allowable.

The following is an examiner's statement of reasons for allowance: claim 9 is allowed because the references cited fail to teach, as applicant has a delay amount control circuit for controlling the delay circuits of the two transmission units on the basis of the comparison signal output from the comparator so that the modulation timing is coincident at transmission output terminals of the two transmission units where the base band signal is subjected to ON/OFF control, the rising timing and falling timing of the detection output when the ON/OFF control is carried out are compared with each other by the comparator, and the delay circuits are controlled by the delay amount control circuit so that the difference between the rising timing and the falling timing is within a permissible time range, as the applicant has claimed.

Conclusion

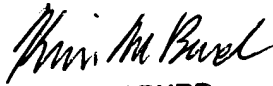
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Juan Alberto Torres
08-09-2005


KEVIN BURD
PRIMARY EXAMINER